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SUGGESTIONS
SUBMITTED TO THE
MEDICAL PRACTITIONERS OF EDINBURGH
ON THE
CHARACTERS AND TREATMENT
OF THE
MALIGNANT CHOLERA.

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THE slight and imperfect suggestions which I am about to offer, are chiefly the result of communications which I have had from Sunderland, Newcastle, and Haddington. Though they may contain little that is new, they may be worthy of being laid before the profession, as the latest observations of intelligent British practitioners who have treated, to some extent, this formidable disease.

In regard to the history and progress of Cholera, a point of the first practical importance seems to be now clearly made out,—namely, that the disease is distinctly referable to three stages.

The *First, or premonitory stage*, to which the attention of the profession and of the public ought to be eagerly directed, is distinguished by languor,—feebleness of the limbs,—uneasiness in the head,—often some frequency of pulse,—and an irritable state of the bowels, perhaps to the extent of three or four evacuations daily. These motions are at first thin but natural, like those of a common diarrhœa, but, as the disease advances, they become gradually paler, until they assume the characteristic appearances of the Cholera

evacuations,—namely, a pale watery matter, which is compared to rice-water, or thin gruel. There is generally some griping pain in the bowels, and more or less pain and tenderness in the epigastric region ; sometimes shooting with considerable violence from the right side across the region of the stomach. In some cases, the febrile symptoms seem to be more distinctly marked, with flushing of the countenance and suffusion of the eyes. The tongue is generally white, and the appetite impaired. There is occasionally vomiting, and sometimes cramp of the limbs, and of the muscles of the abdomen ;—but, in other cases, this stage passes over without either cramps or vomiting. During this important period of the disease, the patient may be going about, and even attending to his usual employment. Its duration seems to vary exceedingly.—In Newcastle it is represented to me as having been from one day to three or four.—In some of the Sunderland cases, it appears to have gone on for a week. In Haddington, its duration is said to have been from a few hours to one day ;—and in all these places, it seems to have been, in many instances, scarcely perceptible. This difference appears to depend, in as far as we can at present judge, on the constitution of the patient. It is probable that this stage will be most distinctly formed, and of longest continuance, in those who have been previously in good health ; and that it will be least perceptible in individuals who have been previously debilitated by disease, privations, or intemperance. In Haddington, accordingly, where this period of the disease seems to have been less remarkable than in some other places, I am informed that at least four-fifths of the deaths took place in persons who were broken down by long continued and ruinous excesses in spirituous liquors.

The *Second stage* comes on with sudden and remarkable prostration of strength,—the pulse extremely feeble, often scarcely perceptible,—cramps affecting both the legs and arms, and frequently the muscles of the abdomen, which are drawn into balls ;—these, however, it is to be observed, may also occur along with the symptoms referable to the first stage, that is, before the occurrence of the remarkable collapse or asphyxia. The purging now goes on, and the evacuations are squirted out with great violence, and often in immense quantities ; but they are in many cases not very frequent, perhaps not more than once in two or three hours ;—the matter evacuated is thin and pale, like rice-water, sometimes like pure water with a little mucus or flocculent matter diffused through it, and often without any smell. There is now generally urgent vomiting ; and the matter vomited is also of a white rice-water appearance,—sometimes like thin frothy mucus. The tongue is generally clean, but cold to the touch ;—the eyes are sunk in a remarkable manner, with blueness of the skin around the eyes and the mouth, and the whole aspect is peculiarly exhausted and cadaverous. The surface of the body is generally cold ;—the skin, especially on the hands, fingers, and feet, is remarkably shrivelled, cold, and blue ; and this blueness sometimes extends over other parts of the body. There is no secretion of urine ;—the breathing is, in some cases, soft and easy ; in others, oppressed and sonorous ; and the voice is entirely changed,—questions being answered in a whisper, or with a peculiar squeaking sound. Pain, or a most severe burning uneasiness, is often complained of at the pit of the stomach ; and frequently it is referred to the space behind the lower part of the sternum. If a vein is opened, the blood in general is with difficulty made to

flow, and what is procured is of a remarkably dark colour, and often of a thick or grumous consistence.

The greater number of deaths take place in this stage, every attempt to rally the system being found ineffectual. Its duration in this country seems to have varied from ten or twelve hours to two days. During the whole of this period the mind in general remains entirely unimpaired.

When the patient survives this stage of *collapse* he may be speedily restored to his usual health, unless in as far as his recovery is retarded by debility. But, in other cases, he passes into the *Third stage*, or that of *Reaction*. This is distinguished by recovery of pulse, heat, and the colour of the countenance; and these are speedily followed by flushing,—suffusion of the eyes, febrile heat and restlessness, often with a remarkable tendency to coma. The tongue becomes loaded, but is generally moist, and the case is now apt to assume the usual characters of continued fever. The stomach and bowels are still more or less irritable, but in a much smaller degree than before. The secretion of urine returns: and the evacuations from the bowels become less pale, shewing bilious or feculent matter, and sometimes being dark-coloured, and extremely offensive; and these matters are often thrown off in immense quantity. This stage is now drawn out like continued fever, with doubtful issue,—and it may terminate fatally, so late as the 14th day.

TREATMENT.

IN alluding briefly to the treatment of Cholera, I abstain, on all material points, from any conjectures of my own, and confine myself to what has been represented to me, by highly intelligent friends, who have treated the disease in this country, as the treatment which has appeared to them to be the most successful.

When the patient is seen in the *First Stage*, a moderate bleeding from the arm seems in general to be useful, especially if there is much pain across the region of the stomach. This is usually followed by an emetic composed of a dessert-spoonful of the flour of mustard, in half a tumbler of tepid water. When there is spontaneous vomiting, some still give the mustard, while others content themselves with clearing out the stomach by draughts of warm water, or warm infusion of chamomile. This is to be followed by pills containing one, or at most two grains of calomel, with from a quarter to half a grain of opium, sometimes combined with one or two grains of camphor.—These are to be repeated every hour, or two hours, and, at the end of five or six hours, to be followed by a gentle dose of castor oil, or magnesia and rhubarb in peppermint water. The operation of this should probably be followed by another moderate opiate, combined with a large quantity of prepared chalk; after which the small doses of calomel and opium may be repeated, at longer intervals, as the circumstances of the case may require. By these means, assisted by keeping the patient warm in bed,

and upon a very cautious regimen, it is said that, in a large proportion of cases, the disease may be arrested in the first stage. In the most strongly marked examples of this period of the disease, we must consider the symptoms as of an inflammatory character. In two cases, reported to me by Dr. Lorimer of Haddington, which were saved by free blood-letting, there were severe tormina, and inclination to vomit, with cramps of the feet, and a strong pulse at 120.

If the patient is not seen till the *Second Stage* has been fully formed, the treatment is much more doubtful, and, in a large proportion of cases, no remedies are of any avail. The indications of treatment which we require to keep in view, seem to be chiefly referable to two heads,—namely, to rally the system out of the state of collapse,—and to act, as far as we have the means, upon the primary disease.

For producing reaction in the system, the mustard emetic is often found useful at an early period of this stage, provided the patient is not so much reduced in strength, as to make it unadvisable to venture on it. But it appears that our chief reliance is to be placed on the application of heat,—and the moderate use of stimulants.

In regard to the application of heat, the dry form of it is now decidedly recommended, and it is evident that the preferable methods will be those which are most simple, most generally accessible, and least fatiguing to the sufferer. The patient is to be laid in a warmed bed, and carefully wrapped in warm blankets;—hot bricks wrapped in flannel, or tin vessels full of hot water are to be placed by the sides of his body:—some strongly recommend hot linen cloths applied to various parts of the body, and changed frequently. The extremities should be par-

ticularly attended to, by hot vessels to the feet, and warm applications to the legs; and I think it probable that benefit may be obtained from heat applied along the course of the spine. For this purpose I have had made by Kilpatrick, in the Crosscauseway, a flat vessel of a wedge shape, which, being filled with hot water, and covered with a blanket, may be laid under the patient as he lies in bed. This, I beg leave to suggest for a trial, as well as the tin vessels of a shape adapted for being laid by the sides of the patient, to be had at the same place.—Large injections of hot water, of the quantity of two or three pounds, have been found extremely useful,—to be repeated every hour or two, or as often as they are discharged. To the first of these, a moderate teaspoonful of laudanum may be added, but the laudanum must be repeated with caution. These means are to be assisted by fomentations to the abdomen,—sinapisms to the region of the stomach, or to the spine,—or cloths soaked in warm oil of turpentine, laid over the abdomen, as hot as they can be borne. The hot air-bath was found useful in India; but the difference of climate will probably impair its utility in this country, unless it is combined with other means, especially such as are calculated for heating the back parts of the body. The use of general frictions has been abandoned by many who at first employed them, under an impression that the unavoidable exposure of the patient counteracts the benefit derived from them.

While these external means are going on, the patient should take, from time to time, small quantities of warm liquid, and moderate doses of stimulants,—such as brandy, in the quantity of a table-spoonful at a time, repeated every half-hour, with hot water, to which some add a few grains of Cayenne pepper. In

the same manner may be used warm wine and water, or warm spiced wine ; this last is said to be in many cases particularly useful. Of the stimulants of a medicinal kind which may be used at this period, there is a great variety at the discretion of the practitioner. Among those most worthy of attention, we may probably reckon, ether—nitrous ether—liquor acetatis ammoniæ—spiritus ammoniæ aromaticus—tincture of musk, tincture of colombo, and camphor, either singly, or in combination, as in the formula recommended by the Edinburgh Board of Health. The essential oils, as oil of peppermint, or oil of cloves, appear to be useful in many cases, and the effervescing draughts made with carbonate of ammonia.

During this period of the disease, small opiates are also useful, but they require to be given with caution. Various forms may answer equally well, as two of the opiate pills of the Edinburgh Pharmacopœia, a grain of opium, with two or three grains of camphor, the camphorated tincture of opium, or a corresponding quantity of laudanum, or of the solution of the muriate of morphia, added to the brandy and water, or other stimulants. Smaller doses of opiates may be repeated, during the stage of collapse, at the interval of one or two hours.

In the peculiar state in which the system is found at this period, the inhalation of oxygen or nitrous oxide was a very natural suggestion. But, from the trials which have been made, it appears that the patients are not able to continue it for a sufficient length of time to derive any benefit from the practice. The injection of oxygen, however, into the rectum, as suggested by Dr. Hunter of this city, seems well deserving of a careful trial.

One of the most delicate questions in the whole treatment of this disease, is that regarding the use of

blood-letting in the state of collapse. When the patient is in the vigour of life, and has been previously in a sound state of health,—when he is seen at a very early period from the commencement of the symptoms of the second stage, while the pulse is still of some degree of strength, and especially if there be severe spasms, and much pain or oppression in the epigastric region, it appears that blood-letting may still be practised in many cases, with evident advantage. It seems to relieve an oppression of the circulating system, as is indicated by the pulse becoming stronger under the evacuation, and the patient expressing himself as delivered from an insufferable load which he felt in the region of the heart. In judging, however, of the benefit likely to be derived from it, and the extent to which it ought to be carried, we must keep in view the circumstances now referred to, and are carefully to watch whether the blood becomes of a more healthy colour, and particularly whether the pulse rises in strength under the discharge. But if the period of collapse has continued for several hours, if the patient be of a feeble and broken down constitution, and especially in that condition in which the blood can scarcely be made to flow, and is of a very dark colour and broken down texture, it seems to be now considered as extremely doubtful whether blood-letting ought to be employed, or whether it does not rather tend to sink the strength of the patient. In many esteemed works, founded upon the observation of the disease as it appeared in India, we are told that when a patient can be made to bleed freely in this stage of the disease, he almost invariably recovers. But the fact is not to be concealed, that in this country, in a considerable number of cases, the patients have bled freely without deriving benefit, but rather appearing to be sunk by the discharge. This may have been owing

to the broken down constitutions of those who, in this country, have been the principal sufferers.

While we pursue the means now referred to for inducing reaction in the system, we are to keep in view such remedies as we have in our power, either for acting upon the primary disease, or for allaying urgent symptoms. Small doses of calomel, it appears, may be continued, not exceeding perhaps doses of one or at most two grains, repeated every hour or two hours, and it may be conveniently given in combination with the pills of opium and camphor formerly referred to. In the Indian practice, it is well known that calomel is given in much larger doses. When the patient is seen at a period of the disease admitting of active treatment, bleeding from the arm is first employed, and this is followed by calomel, in a dose generally of twenty grains, either combined with gr. ij. of opium, or followed by a draught, with sixty drops of laudanum, and twenty drops of oil of peppermint. The calomel is afterwards repeated at intervals, in smaller doses, to the extent of from forty to sixty grains. This practice seems to have been extensively employed in Russia, but its success does not appear to demand for it any decided preference; and the smaller doses repeated at intervals will probably be found, in this country, safer and more beneficial. The oxide of bismuth has been often employed, and may probably be useful in allaying the vomiting; and the carbonate of soda, in doses of one dram every hour, has been lately recommended with much confidence. Among the other remedies to be kept in mind at this period of the disease, are large and repeated doses of magnesia, combined with small opiates, and large quantities of chalk. The nitric acid has also been strongly recommended in India, but we have heard little of its use in this country. Its use as an article of drink, is

said to be in all cases extremely grateful to the patient. The cajeput oil seems to have been fully tried in Russia, and to have lost its reputation. In cases of extreme collapse, large doses of camphor have been recommended, as ten or fifteen grains, combined with ten grains of calomel, and ten drops of any of the essential oils; I know not with what success.

In regard to the whole of the second stage, it is of much consequence to observe, that opiates require to be given with much caution, and that even the use of stimulants requires some discretion. For by doing too much in both these respects, especially the former, during the state of great collapse, there is reason to believe that the system may be overpowered instead of being rallied, and also that the subsequent stage of reaction is made more severe and more dangerous. A large proportion of the cases that are met with in this stage, indeed, assume such characters as set at nought all human aid. This seems to be particularly the case in persons who have been broken down by habits of intemperance. Such, as I have already stated, were at least four-fifths of the fatal cases that occurred in Haddington. In these it was found that no combination of stimulants arrested for a moment the downward progress of the disease. Bleeding was practised extensively in these cases, but they never succeeded in obtaining a sufficient quantity of blood, or any change in its appearance. The mustard emetic was also almost always employed, and seldom failed to act as an emetic, but it never produced reaction in the system, or any benefit. It seems probable, therefore, than in such a state of the symptoms the best chance for recovery would be given by perfect quiescence and external heat,—with very small opiates, and the moderate but steady use of stimulants. In all cases, during the stage of collapse, the patient

should on no account be raised out of the recumbent posture, as by doing so instant death may take place from syncope; and every thing should be avoided that can give rise to bodily exertion or mental emotion.

The *Third Stage*, or that of Reaction, is to be treated upon the general principles which are applicable to continued fever,—by cool regimen, diaphoretics, and laxatives, as circumstances may indicate. Free purging is often required from the quantity of morbid matters which are thrown off from the bowels. When the symptoms of reaction are high, general bleeding to the extent of ten or twelve ounces is sometimes required;—and when there is much tendency to coma, leeching or cupping may be necessary, with the application of cold to the head, or blistering on the neck, and mustard cataplasms to the feet. When the stomach continues irritable, benefit is often derived from cupping on the epigastric region.

This brief outline seems to comprehend the leading facts, of a strictly practical nature, which we require to keep in view, in the prospect of having to enter on the treatment of this new and obscure disease. Should it unfortunately visit our city, there are several points regarding it, which will be to us matter of most interesting observation, and in which it will behoove us to co-operate with the utmost zeal in endeavouring to arrive at the truth.

In the first place, we must study with eager attention, the symptoms which indicate the first or premonitory stage, in which there is reason to believe that the disease may be treated with success. We must co-operate in ascertaining what is the treatment

adapted to this stage; and in impressing upon the public, especially the lower classes, the essential importance of seeking assistance while the disease is still in this period of its progress.

A still more anxious duty will devolve upon us, in endeavouring to ascertain what is the treatment best adapted to the state of collapse, or the second stage. In particular, we have carefully to investigate what are the precise circumstances in which blood-letting may be employed with safety or with advantage, and what are the rules by which we ought to be guided in the repetition of it.

Another point which appears to me to present a most important subject of observation is,—what powers there are in the constitution itself, which may tend to rally it out of the state of collapse in the second stage,—how this tendency may be best aided and encouraged,—and whether it may not, in some instances, by over-treatment, be rather interfered with. On this subject we find some facts which appear to be worthy of much attention. It is stated by Sir William Crichton, that among the most miserable peasants in the neighbourhood of St. Petersburg, a considerable number of what appeared to be the very worst cases, recovered without any medical assistance;—a common practice among them was drinking large draughts of sweet milk. A case has also been communicated to me from Sunderland, in which an individual recovered from apparently the worst state of the disease, who was left without any other medical aid than one or two moderate doses of the London Purgative. I have conversed with the intelligent captain of a merchant vessel, who, when the disease broke out in his ship, soon after he sailed from Cronstadt, treated himself, and four or five of his crew who were affected, by large doses of castor oil. He

commenced by clearing their stomachs with warm water,—then gave his doses of castor oil, generally twice a-day, and all his patients recovered. It is right to add, that the use of castor oil, in doses of half an ounce, combined with fifteen or twenty drops of laudanum, is a practice which is said to have been employed in India with very considerable success.

In regard to the whole of the anxious investigation which is before us, I would respectfully propose to my professional brethren an extensive and confidential system of mutual intelligence and aid. For this purpose a plan of *Returns* has been arranged by the medical members of the Board of Health, which will be speedily communicated to the gentlemen of the profession. Relying on the knowledge which I have of their zeal and their talent, I anticipate from such a system the most important consequences both to the cause of humanity and of science. To give it the greater efficiency, I would propose that two or three individuals shall be appointed to receive communications of a practical nature,—and that these should publish occasional reports of such information as may seem to be of immediate and practical importance. By such means, I trust we shall be enabled, under Divine providence, to discharge more efficiently our duty to the public in the period of intense anxiety to which we are approaching; and to contribute something to the pathology and the treatment of this most obscure and formidable disease.